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Environmental Protection Agency Reports

Book 4

Preliminary Data Report, Project Rulison Off-Site Surveillance Flaring Period - October 4-5, 1970

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PRELIMINARY DATA REPORT

Project Rulison Off-Site Surveillance

Flaring Period - October 4-5, 1970

Public Health Service, Southwestern Radiological Health Laboratory

I. October 4 - 2 MMCFD Flaring

Flaring began approximately 0630 hours. Nitrogen was flushed from the well until approximately 0700, and natural gas flowed at the 2 MMCFD flow rate until flow shut-down at approximately 0830 hours.

No special "calibration flaring" samples were collected. SWRHL monitors were on station at the old CP pad at 0615 to mount a full-scale sampling program when a flow rate of 5 MMCFD was reached, but well shut-down occurred first.

Drainage winds were in effect during the flow period, carrying plume material down Battlement Creek valley and over Morrisania Mesa. Dehumidifier samples of atmospheric moisture (24-hour samples) at two ranches on Morrisania Mesa gave background levels for tritium, as listed in Table 1.

SWRHL aerial tracking detected the plume over Morrisania Mesa, and an aerial sample in the plume there and later over the Colorado River produced background results for tritium and krypton, as listed in Table 1. Plume material was also detected by aircraft just north of Doghead Mountain, but no samples were collected in that area.

II. October 5 - 10 MMCFD and 15 MMCFD Flaring

Flaring began approximately 2100 hours on October 4 and continued through about 1800 hours October 5. SWRHL monitors, collected atmospheric moisture samples (2 to 4 hours duration) during the night-time build-up flow, and conducted an extensive tracking and monitoring program during the 10 MMCFD flow rate level the morning of October 5 and during the 15 MMCFD flow rate that afternoon.

Night-time drainage winds developed down Battlement Creek valley the night of October 4, and early a.m. atmospheric moisture samples were collected at the old CP pad and on Morrisania Mesa. Only background levels of tritium were observed in these samples, as listed under "Sieve Samples" in Table 2.

Aerial tracking showed the majority of the plume material during the 10 MMCFD flaring level went northeast over Doghead Mountain, and then easterly to pass 4 or 5 miles south of Silt. Some plume material was carried down Battlement Creek valley by drainage winds. Aerial and ground sampling results are listed in Table 2. The attached map shows sampling locations. Sampling results from stations established south of Silt are not yet available. Some aircraft

sampling results listed have not yet been adjusted for dilution factors, and will be revised upwards.

Drainage winds were not in effect during the 15 MMCFD level, and the plume was tracked over Doghead Mountain and to the area just south of Rifle and Silt. Ground and aerial sampling results are listed in Table 3. These aerial results may also be adjusted.

Table 1. 2 MMCFD Flaring Results - 10/4

Location	Date	Time Off	^{3}H (pCi/l)	K_r (pCi/m^3)
Dehumidifier Samples				
Clem Ranch	10/4	1150	<400	-
Duplice Ranch	10/4	1230	800	-
Aircraft Samples				
Morrisania Mesa	10/4	0900	1300	7.0
Colorado River	10/4	0930	1300	9.0

Table 2. 10 MMCFD Flaring Results - 10/5

	Location	Date	Time Off	^3H (pCi/l)	Kr (pCi/m^3)
Aircraft Samples					
	Battlement Valley Mouth(320°,4 mi)	10/5	0748	1,200	150
	Doghead Mountain(40°,1 mi)	10/5	0834	4,700	20
	Doghead Mountain(40°,1 mi)	10/5	0858	6,900	-
	Silt (4 mi South)(75°,19.5 mi)	10/5	0920	3,100	lost
	B-I	10/5	0951	1,600	-
Sieve Samples					
Night-time drainage samples during flow build-up period.	D-12 (Community Hall)	10/5	0630	830	-
	D-13	10/5	0630	550	-
	D-14	10/5	0540	1,200	-
	D-14	10/5	0630	1,100	-
	Clem Ranch	10/5	0630	640	-
	Old CP Pad	10/5	0500	1,200	-
	Old CP Pad	10/5	0635	900	-
	C-V	10/5	0930	800	-
	C-VII	10/5	0940	820	-
	Old CP Pad	10/5	0950	1,300	-
	C-X	10/5	1005	970	-
	A-VII	10/5	1005	12,000	-
	A-IX	10/5	1040	58,000	-
	A-X	10/5	1035	51,000	-
	A-XI	10/5	1045	8,600	-
	B-I	10/5	1107	10,000	-
	B-III	10/5	1051	4,000	-
Cryogenic Sample					
	Old CP Pad	10/5	1005	<400	Not detected

Table 3. 15 MMCFD Flaring Results - 10/5

Location	Date	Time Off	^3H (pCi/l)	Kr (pCi/m^3)
Aircraft Samples				
Doghead Mtn(45°,0.8-2 mi)	10/5	1512	-	18
NE of test well (40°-45°, 2-3 mi)	10/5	1607	6,900	29
SE of Rulison (50°-62°, 6.3 mi)	10/5	1637	7,900	25
Sieve Samples				
A-VII	10/5	1553	4,400	-
A-IX	10/5	1555	29,000	-
A-X	10/5	1550	33,000	-
A-XI	10/5	1554	3,800	-
B-I	10/5	1524	2,300	-
B-III	10/5	1525	2,500	-